

Date: Thursday, 12/21/2006 12:01:56 PM
User: Kim Johnston

Process Sheet

Customer : CU-DAR001 Dart Helicopters Services
Job Number : 30068
Estimate Number : 11672
P.O. Number : N/A
This Issue : 12/21/2006 S.O. No. : N/A
Prsht Rev. : NC
First Issue : N/A Type : LARGE FAB ASSY
Previous Run : 28391
Drawing Name : SHORT STEP ASSEMBLY
Part Number : D350591121
Drawing Number : D2351 REV E
Project Number : N/A
Drawing Revision : E
Material : N/A
Due Date : 1/20/2007
Qty: 4 Um: Each
Written By :
Checked & Approved By :
Comment : Est Rev. E 02.10.21 Re-format; Incorporated D2351-041 IPP K
J/R/F
est rev. F 06.02.23 added grinding EC

Additional Product

Job Number:



Seq. #: Machine Or Operation: Description :

1.0 DC DOCUMENT CONTROL



Comment: DOCUMENT CONTROL
Photocopy bluefile and type labels as per PPP D350-591-121CHG003

2.0 D2244116 Step Extrusion



FOR TRACEABILITY
USE ALL 4 BATCHES



Comment: Qty.: 0.5000 Each(s)/Unit Total: 2.5000 Each(s)
Pick:
Qty Part Number Description Batch
0.5 D2244-128 Extrusion

33000274
Rework B31406 = 4
FF 07-02-28

3.0 LARGE FAB 1 LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Cut D2244-128 extrusion to 55.32" long as per Dwg D2351 using cutting table setup DT8185-G
2-Drill extrusion per Dwg D2351 using Jig DT8230 for rivets.
3-Deburr

FF 07-02-28
FF 07-02-28

4.0 BENDING BENDING MACHINE



Comment: BENDING MACHINE
Bend per Dwg D2351 using Bend Program D23561dD FT011

DA/EL 07/03/05

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector
07/03/05	3.1	QCS inspection <u>permanent change</u>	MA	07/03/05	5		MA 07/03/05

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
07/03/12	4.0	2 scrap over bent	Qs1042	destroy & replace (2 scrap)	D/EL 07/03/12	MA 07/03/12	Qs1042	MA 07/03/12

NOTE: Date & initial all entries

Date: Thursday, 12/21/2006 12:01:56 PM
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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 30068

Part Number: D350591121

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

DP 7-4-3 (2) 07/03/12 (3) (5)

6.0

D28501

End Bracket



Comment: Qty.: 1.0000 Each(s)/Unit Total: 5.0000 Each(s)

Pick:

Qty Part Number Description Batch

1 D2850-1 End Bracket

~~329848~~ 329848

07-03-31

7.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Bevel Fwd and Aft end for welding

2-Weld Aft End Bracket per QSI 004 & Dwg D2351 using Welding Jig DT8033

A/R Aluminum Rod M180237
M102225

3-Do not Grind Flush

07-03-31
07-03-31
07-03-31

8.0

QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

07/07/17 (5)

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

7-4-3 (5)

10.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

07-07-16

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

07-07-23 (5)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 12/21/2006 12:01:56 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 30068

Part Number: D350591121

Job Number:



Seq. #:

Machine Or Operation:

Description :

12.0

D2582

Hi-Skid Step Leg Ass'y



Comment: Qty.: 1.0000 Each(s)/Unit Total: 5.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2582

Step Leg Assy

~~302422~~
330813

PE. 07-07-23 5

13.0

MS20600AD4W3

Cherry Rivets



Comment: Qty.: 16.0000 Each(s)/Unit Total: 80.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

16 MS20600AD4W3 Rivet

~~314393~~
3M102929

PE. 07-07-23 5

14.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Rivet Leg Assembly as per Dwg D2351

PE. 07-07-23 5

15.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

EP 07/07/23 (S)

16.0

D267334

End Plate



Comment: Qty.: 1.0000 Each(s)/Unit Total: 5.0000 Each(s)

Pick:

Qty Part Number

Description

Batch

1 D2673-34 End Plate

~~305396~~ 332404

PE. 07-07-23 5

17.0

LARGE FAB 1

LARGE FABRICATION RESOURCE 1



Comment: LARGE FABRICATION RESOURCE 1

1-Weld Fwd End Plate per QSI 004 & Dwg D2351

A/R

Aluminum Rod

~~M100237~~
M103794

2-Grind end cap flush per dwg D2351

PE. 07-07-23 5
Q.M. 07-07-25 PE.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 12/21/2006 12:01:57 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 30068

Part Number: D350591121

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

QC9

VISUAL WELDING INSPECTION



Comment: VISUAL WELDING INSPECTION

07-07-25 (5)

19.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

07/07/25 (5)

20.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Touch up Alodine

BR

07-08-02

(5)

21.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

M105068

BR/M 07-08-02

(PTC)

(5)

22.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Wing Walk per Dwg D2351 and QSI 005 4.4

Batch: m/104942

FL

07/08/14

(5)

23.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

07/08/14 (85)

24.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Pick Packing Kit

25.0

D22301

Mounting Lug



Comment: Qty.: 1.0000 Each(s)/Unit Total: 5.0000 Each(s)

Pick:

Packing Kit Qty Part Number
1 D2230-1 Mounting Lug


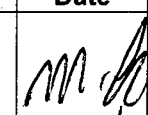
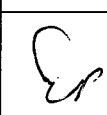
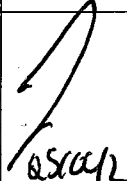
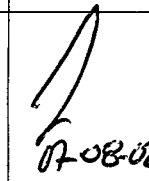
Description Batch

B300992

1/2/27

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ **NCR:** Yes No DQA: OK Date: 07.08.15
 QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			
7-0802	21.0	Marks from the bender were very visible after powder coating. RC: Area not ground enough	 Q51042	See NCR 200 for re-work instructions.	 07/04/14	 07/08/14	 Q51042	 7-0802

NOTE: Date & initial all entries

Date: Thursday, 12/21/2006 12:01:57 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 30068

Part Number: D350591121

Job Number:



Seq. #:

Machine Or Operation:

Description :

26.0

D22303

Mounting Lug



Comment: Qty.: 1.0000 Each(s)/Unit Total: 5.0000 Each(s)

Pick:

Packing KitQty Part Number

Description

Batch

1 D2230-3 Mounting Lug

1533690

1333993

SP

27.0

D2856400

Abrasion Strip



Comment: Qty.: 0.6000 f(s)/Unit Total: 3.0000 f(s)

Pick:

Packing KitQty Part Number

Description

Batch

1 D2856-400 7.20" Abrasion Strip

1532992

SP

28.0

AN337A

Bolt



Comment: Qty.: 2.0000 Each(s)/Unit Total: 10.0000 Each(s)

Pick:

Packing KitQty Part Number

Description

Batch

2 AN3-37A

Bolt

1102339

SP

29.0

AN413A

Bolt



Comment: Qty.: 3.0000 Each(s)/Unit Total: 15.0000 Each(s)

AN4-13A

Batch:

1104746

SP

30.0

AN960JD10

Washer



Comment: Qty.: 4.0000 Each(s)/Unit Total: 20.0000 Each(s)

Pick:

Packing KitQty Part Number

Description

Batch

4 AN960JD10

Washer

1104885

SP

31.0

AN960JD416

Washer



Comment: Qty.: 6.0000 Each(s)/Unit Total: 30.0000 Each(s)

Pick:

Packing KitQty Part Number

Description

Batch

6 AN960JD416

Washer

1104213

7/7/27 SP

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 12/21/2006 12:01:57 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: SHORT STEP ASSEMBLY

Job Number: 30068

Part Number: D350591121

Job Number:



Seq. #:

Machine Or Operation:

Description :

32.0

MS21042L3

Nut



Comment: Qty.: 2.0000 Each(s)/Unit Total : 10.0000 Each(s)

Pick:

Packing KitQty Part Number Description Batch

F1 2 MS21042L3 Nut (or -3) M104547

SP

33.0

MS21042L4

Nut



Comment: Qty.: 3.0000 Each(s)/Unit Total : 15.0000 Each(s)

Pick:

Packing KitQty Part Number Description Batch

F1 3 MS21042L4 Nut (or -4) M102552

7/7/27 SP

34.0

QC4

INSPECT 100% KITS FOR COMPLETENESS



Comment: INSPECT 100% KITS FOR COMPLETENESS

Er 07/08/14 (85 kits)

35.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and pack for shipping as per PPP D350-591-121

Location:

PPP Rev:

C

7/8/14

SP

34

36.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

07.08.15

Job Completion



U 07-08-15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART

DESIGN KE	DRAWN BY PH	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED #	APPROVED #	DRAWING NO. D2351	REV. E SHEET 1 OF 2
DATE 05.11.14		TITLE HIGH FLOAT STEP ASSEMBLY	SCALE NTS
A	95.02.15	NEW ISSUE	
B	97.05.22	END CAPS CHANGED	
C	97.07.23	ADDED BUSHING AND FACING INFO	
D	98.12.17	CHANGED TO BEND, D2850 REPLACES D2357 & D2358, INCORP. DEO 9084	
E	05.11.14	UPDATE FINISHING NOTE	

D2351 HIGH FLOAT STEP ASSEMBLY PARTS LIST

Part No.	Description	QTY -041	QTY -042
D2351-041	High Float Step Assembly (LH)	X	
D2351-042	High Float Step Assembly (RH)		X
D2244-55.4	STEP EXTRUSION*	1	1
D2582	STEP LEG ASSEMBLY	1	1
D2673-34	STEP END PLATE	1	1
D2850-1	END BRACKET	1	
D2850-2	END BRACKET		1
MS20600AD4W3	RIVETS	16	16

*cut per drawing

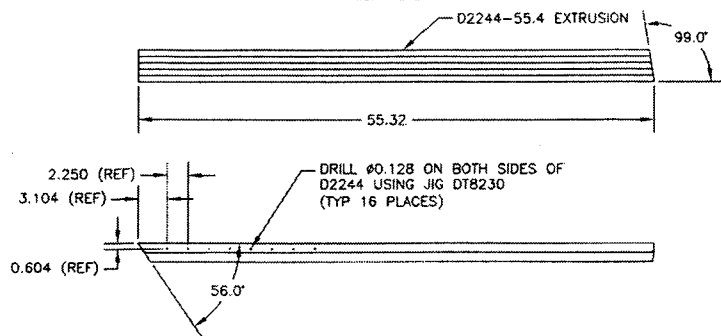
SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 30068

RELEASED
05.11.28 #

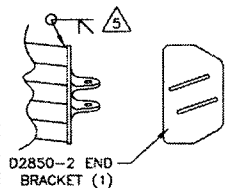
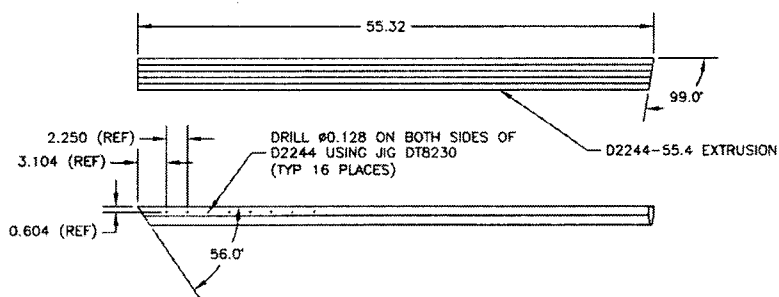
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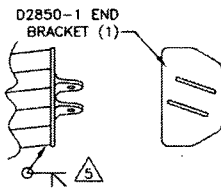
D2351-2 CUTTING/DRILLING DETAIL
RIGHT STEP



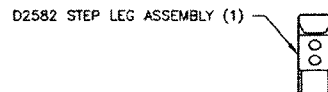
D2351-1 CUTTING/DRILLING DETAIL
LEFT STEP



DETAIL A
SCALE: 1:4



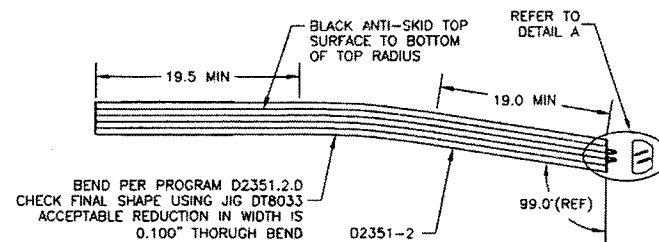
DETAIL B
SCALE: 1:4



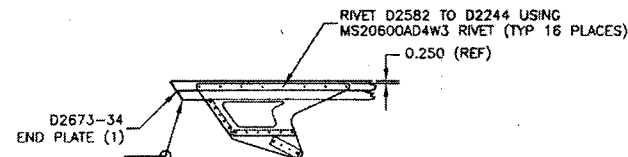
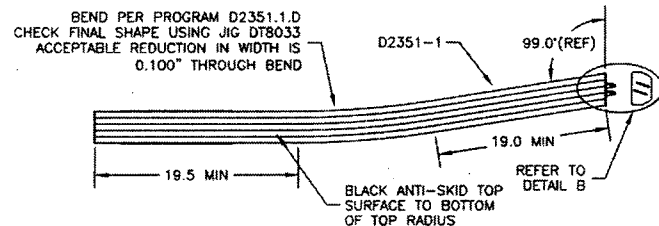
GENERAL NOTES

- 1) WELD PER DART QSI 004
 - 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT GLOSS WHITE (4.3.5.1) PER DART QSI 005 4.3
BLACK ANTI-SKID PAINT PER DART QSI 005 4.4
 - 3) ALL DIMENSIONS ARE IN INCHES
 - 4) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- ⚠ CHAMFER D2244 EXTRUSION 0.075"x45" BEFORE WELDING D2850-1 OR D2850-2 IN PLACE. DO NOT GRIND FLUSH.

D2351-042 BENDING/ASSEMBLY DETAIL
RIGHT STEP



D2351-041 BENDING/ASSEMBLY DETAIL
LEFT STEP



RELEASED
05.11.18

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KE	PH	CHECKED	APPROVED		
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.		DATE	DRAWING NO.	REV. E	
		05.11.14	D2351	SHEET 2 OF 2	
			TITLE	SCALE	
			HIGH FLOAT STEP ASSEMBLY	1:12	

W/030068

Non-Conformance Report

NCR 200

Raised by:

Jason Marshall

Source:

Production Finishing

Sheet No. ___ of ___

Non-Conforming

Dept./Supplier:

Production/Range Fab.

Date:

07-08-02

Product/Service:

D350-S91-121/-122

Priority:

HIGH
LOW

Area of Standard:

QSI

QSP

QSPM

Documents:

P/O

Invoice

W/O

Batch No.

TSR

Drawing

Section A

Description of Non-Conformance

marks from the roller were visible after paint. Please see the inside of the step. All steps are affected. 4 from B30069, and 5 from B30069. Instructions completely!!

REFERENCE ONLY

Root Cause: Bench roller marks that were grain smooth, were not quite grain enough, and were very visible after powder coating, due to the gloss white.

Forward to Director, Quality Assurance on completion of this box

DQA: Section B: Indicate who is responsible for creating C/A, and a completion date. Section C: Indicate who will verify completion of C/A.

Section B

Corrective Action

Responsible for Investigation/CA: L. Lucelle

To be done by: 07-08-03

No	Initial	Action Description	Responsible	Due date	Sign/Date
1	J.M.	Buff/grind the inside of the steps to remove the roller marking, as necessary.	A. Myre	07-08-03	A.M. 07-08-03
2	J.M.	Inspect the re-grind area with a QCS	E.D./J.M.	07-08-03	E.D./J.M. 07-08-03
3	J.M.	Touch-up affected area with pladine per QSI COS.	M.G.	07-08-03	M.G. 07-08-13
4	J.M.	SP 3 Inspect pladine touch-up	E.D./J.M.	07-08-03	E.D./J.M. 07-08-13
5	J.M.	Re-suff the steps for adhesion purposes, and clean/prep per QSI COS	M. Gregory	07-08-03	M. Gregory 07-08-13
6	J.M.	Re-powder coat steps per QSI COS.	M. Gregory	07-08-03	M. Gregory 07-08-14

Fault Category:

Preventive Action Required: NO YES # _____

Section C

Verification of C/A

Responsible for Verification of CA: _____

No	Verification Method	Sign	Date	Forward to DQA on Completion of Verification

Forward to DQA on Completion of Verification

DQA: _____

Date: _____

QA Purposes only

N/C Closed

Date